Studies on Biocatalyses. (XVI) : On the Distribution of Boron in Several Fruits

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Table I.

Mesh.	New Sands.				Old Sands.			
	A	B	C	D	A	B	C	D
+ 6	0.0	0.0	0.2	0	0	0.6	0	0.2
+ 8	0.3	0.2	0.2	0.1	0	0.3	0.3	0.4
+ 10	0.2	0.3	0.4	0.1	0.2	0.6	0.5	0.6
+ 14	0.4	0.8	0.6	0.5	0.6	0.9	0.8	1.1
+ 20	0.4	1.6	0.7	0.4	0.7	1.3	1.1	1.9
+ 28	0.2	2.5	1.2	1.1	0.9	1.7	1.5	3.7
+ 35	0.3	3.8	1.6	1.6	1.2	2.6	2.0	3.4
+ 48	0.4	6.9	5.0	1.9	11.5	9.4	9.1	6.2
+ 65	0.6	10.2	7.8	5.8	13.8	10.4	11.2	7.1
+100	1.4	32.2	23.1	23.0	16.4	18.6	19.9	19.0
+150	2.9	23.5	27.0	20.3	7.4	16.9	18.0	18.9
+200	2.7	3.3	4.7	12.2	2.2	4.7	4.2	4.7
+270	24.0	4.6	4.8	15.6	10.0	8.1	8.0	12.8
−270 (Pan)	49.9	4·5	9.2	7.1	28.9	13.0	13.8	9.7
Clay	17.0	5.5	13.6	10.4	5.6	10.4	9.3	9.5

23. On the Device to Observe Zeeman Effect at 1 cm Wave

Isao Takahashi, Akira Okaya and *Tsuneo Hashi*

(Nozu Laboratory)

To produce 1 cm Wave, we converted 3 cm Wave from a klystron 2K25 to 1 cm Wave by the use of a silicon crystal 1N23 and other necessary components.

Our device are otherwise composed of TE_{123} sample cavity, TE_{011} 3 cm cavity wave meter, 1N26 crystal detector with mount magnet and vacuum tube circuit.

We succeeded in observing very clearly the cavity resonance in the mode curve of the klystron tube.

Thus we are prepared to observe Zeeman effect at 1 cm wave with the magnetic field intensity 5000 Gauß at most.

24. Studies on Biocatalyses. (XVI)

On the Distribution of Boron in Several Fruits

Kinsuke Kondo, Shigeki Mori and *Morikazu Kajima*

(Kondo Laboratory)

Of various fruits, the boron rich fruits such as apple, orange and tomato were

analyzed with respect to the boron content in different parts of the fruit.

The results of analysis are as follows:

	Fruit Weight g	Total B as H_3BO_3 mg	H_3BO_3 mg	Occurrence	Percent. against Total B %
Mandalin Orange	72	1.01	0.82	in Peel	80.65
Apple	203	11.2	8.95	in Pulp	80.27
Tomato	100	1.11	0.75	in Pulp	68.47

In the case of apple and tomato the greater amount of boron is shifted into hot water extract of the pulp. And after dialyzing the extract for removing sugars, acids and mineral substances, boron could not get through the membrane combining with pectine. And the boron content of dialyzed pectine amounted to as much as 947 mg H_3BO_3 (apple pectine) and 1581 mg H_3BO_3 (tomato pectine) per Kg dry matter.

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25. Studies on Biocatalyses. (XVII)

On the Combination of Polysaccharides and Borate

Kinsuke Kondo and *Shigeki Mori*

(Kondo Laboratory)

The polysaccharides such as pectine, gum and mucilage were purified removing sugars, acids and mineral matters by means of dialysis or electro-dialysis. The boron contents combined with the purified polysaccharides were estimated. The results are given in the following table:

Polysacharides	Nature of Polymer	Materials	H_3BO_3 D.M.*	Method of Separation and Purification
Pectine	Polymer of Galacturon. Acid	Tomato, pulp	1581	Hot water extract Dialysis
		Apple, pulp	947	〃 〃
		〃 〃	837	〃 〃
		Orange, peel	2359	Ammon. Oxalate extract,
Sea Weed mucilage	〃 〃 Mannuron. Acid	Sea Weed		
		Aomogusa[1]	1832	Electro-dialysis
		Hitoeguso[2]	11481	〃
		Umiuchiwa[3]	6659	〃
Gum	〃 〃 Glucuron. Acid	Peach gum	756	Dialysis
		Junsai[4]	1708	〃
Tannin	Polyphenol	Kaki-Shibu[5]	671	〃